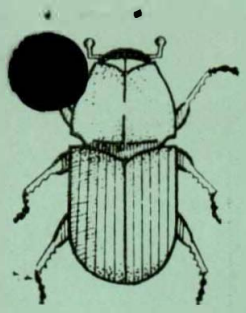

INSECT DISEASE REPORT

USDA FOREST SERVICE/NORTHERN REGION

Report No. I-72-3

May 1972

EFFECT OF THINNING SECOND-GROWTH PONDEROSA PINE ON INCIDENCE OF MOUNTAIN PINE BEETLE INFESTATION

ESTABLISHMENT REPORT

by

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INTRODUCTION

This report documents the establishment of a study to determine the effect of thinning on incidence of mountain pine beetle, *Dendroctonus ponderosae* Hopk., infestation in second-growth ponderosa pine stands in western Montana.

Although insufficient time has passed for a similar study in Oregon to yield a solid base for a specific pest management recommendation, preliminary results have been encouraging enough to explore this approach in Montana and Idaho (Sartwell 1971).

Timing of activities.--Ground surveys were conducted during the fall of 1971 and will be conducted during the falls of 1972, 1973, 1974, and 1975.

The study will provide data on:

1. Number of trees per acre by species in thinned and unthinned stands.

2. Number and kind (size, crown class, etc.) of trees killed by *Dendroctonus ponderosae* in thinned and unthinned stands by year.

3. Estimates of residual stocking and volume following 5 years of infestation in thinned and unthinned areas.

LOCATION OF STUDY BLOCKS

The study blocks are located in the Ninemile Ranger District of the Lolo National Forest. This area currently contains a severe infestation of mountain pine beetle in a 60- to 80-year old, mixed second-growth ponderosa pine, Douglas-fir stand at 3,200 to 3,600 feet elevation.

Commercial Thinning Block (Stoney Creek)

Location.--Sections 31-32, T. 15 N., R. 22 W., acreage - 200. Check block: Section 6, T. 15 N., R. 22 W., acreage - 200 (Fig. 1).

Precommercial Thinning Block (Isaacs Creek)

Location.--Sections 3-4, T. 15 N., R. 22 W., acreage - 633. Check block: Section 9-10, T. 15 N., R. 22 W., acreage - 200 (Fig. 1).

Personnel involved.--Personnel involved in the establishment and surveying of the blocks were Tilford C. Shipe, Merlin W. Lemmer, and Neil F. McGill, Ninemile Ranger District, and Mark D. McGregor, Division of State and Private Forestry, Regional Office.

PRETREATMENT SURVEY

The survey and plot layout were started in December 1971 and completed in February 1972. The four 200-acre blocks were surveyed prior to thinning in order to measure mountain pine beetle infestation levels, using a variable plot B.A. cruise (BA = 20) at 5-chain intervals on lines 5 chains apart. Results of the pretreatment surveys in the thinning and check blocks are shown in Tables 1, 2, 3, and 4.

REFERENCE CITED

Sartwell, Charles, 1971. Thinning ponderosa pine to prevent outbreaks of mountain pine beetle. Proceedings, precommercial thinning of coastal and intermountain forests in the Pacific Northwest. Cooperative Extension Service and Department of Forestry and Range Management. Washington State University, Pullman.

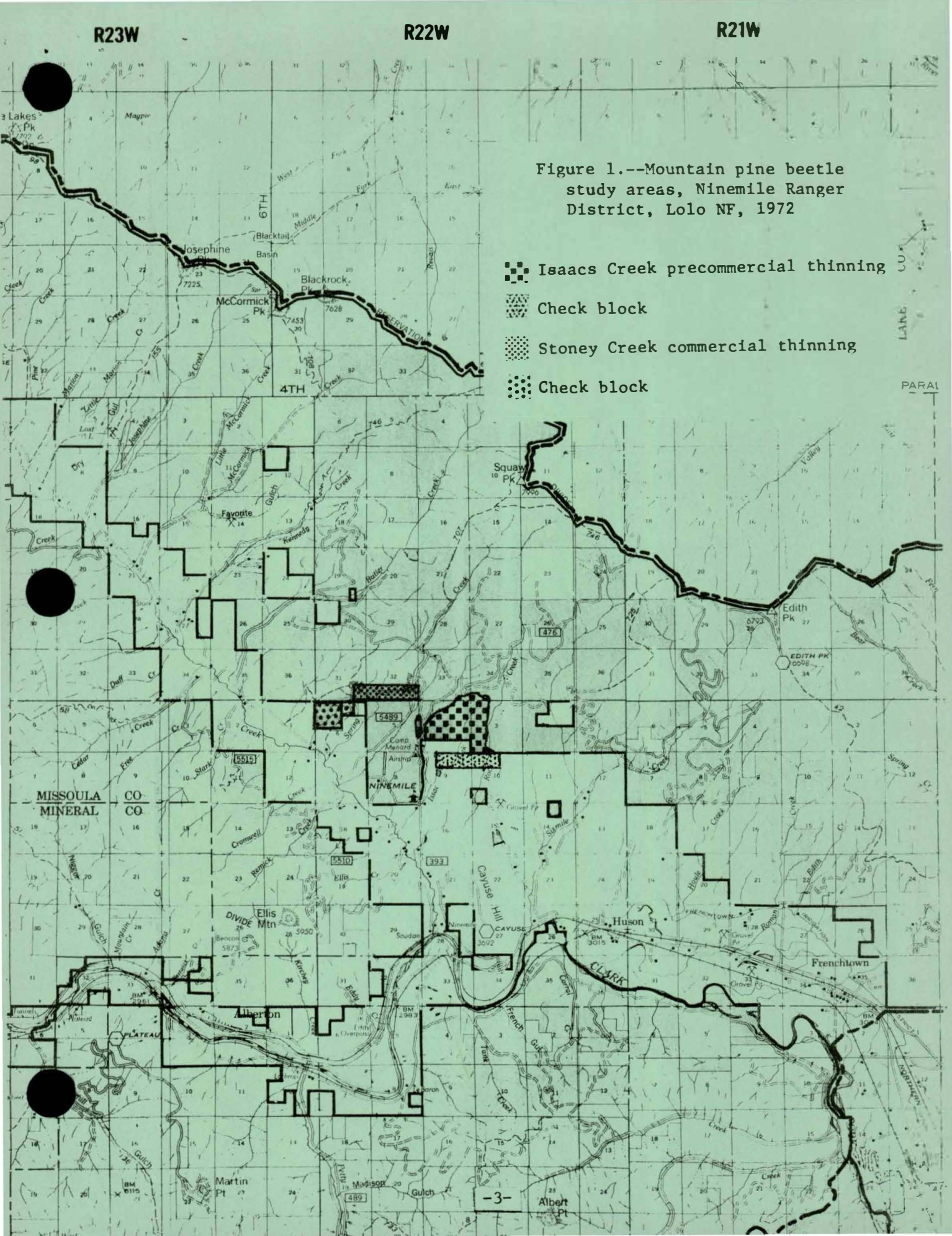

Figure 1.--Mountain pine beetle study areas, Ninemile Ranger District, Lolo NF, 1972

Table 1.--Impact of the mountain pine beetle by year in Stoney Creek commercial thinning block.

Year	Ave. d.b.h.	Trees killed per acre	Percent of stand killed	Remaining green stems/acre	Remaining green ponderosa pine/acre	Volume killed bd. ft.	Volume killed/ acre bd. ft.	Remaining green stand volume bd. ft.
1969	7.0	13.1	4.6	267.3	119.0	11,660	58	1,383,058
1970	9.0	7.2	2.6	260.1	111.8	42,964	215	1,340,094
1971	8.0	5.6	2.1	254.5	106.2	12,342	62	1,327,752
Total			9.3			66,966	335	

Table 2.--Impact of the mountain pine beetle by year in Stoney Creek check block.

Year	Ave. d.b.h.	Trees killed per acre	Percent of stand killed	Remaining green stems/acre	Remaining green ponderosa pine/acre	Volume killed bd. ft.	Volume killed/ acre bd. ft.	Remaining green stand volume bd. ft.
1969	7.0	36.0	12.5	251.6	164.2	26,034	130	987,715
1970	7.0	50.5	19.9	201.1	124.0	65,223	326	922,442
1971	7.0	27.3	13.5	173.8	96.7	46,785	236	865,657
Total			45.9			138,042	692	

Table 3.--Impact of the mountain pine beetle by year in the Isaacs Creek precommercial thinning block.

Year	Ave. d.b.h.	Trees killed per acre	Percent of stand killed	Remaining green stems/acre	Remaining green ponderosa pine/acre	Volume killed bd. ft.	Volume killed/ acre bd. ft.	Remaining green stand volume bd. ft.
1969	9.0	1.1	0.3	298.2	81.4	-	-	-
1970	13.0	.4	0.1	297.8	81.0	5,657	31	2,885,641
1971	12.0	3.0	1.0	294.8	78.4	33,436	9,619	2,852,205
Total			1.4			39,093	9,650	

Table 4.--Impact of the mountain pine beetle by year in the Isaacs Creek check block.

Year	Ave. d.b.h.	Trees killed per acre	Percent of stand killed	Remaining green stems/acre	Remaining green ponderosa pine/acre	Volume killed bd. ft.	Volume killed/ acre bd. ft.	Remaining green stand volume bd. ft.
1969	8.0	24.1	12.2	172.0	112.4	68,102	341	743,917
1970	9.0	5.6	3.2	166.4	96.8	22,113	111	721,804
1971	8.0	8.8	5.2	157.6	88.0	29,423	147	692,375
Total			20.6			119,638	599	